What is claimed is:

1. A power control system for controlling the power supplied to a lighting system and limiting power during time of peak demands and the like wherein the lighting system includes a power source and a lighting load connected to the power source, said control system comprising:

(a) a main transformer having a first winding and a second winding, said first winding being connected between said power source and said lighting load;

(b) a solid-state switching circuit connected between said power source and said second winding of said main transformer which includes:

(i) a toroidal transformer connected to said power source having a plurality of electrical transformer taps wherein each tap has a prescribed voltage value, and

(ii) a plurality of solid-state tap switches connected to said transformer taps and to said second winding of said main transformer to apply one of said prescribed voltage values across said main transformer; and

(c) a controller having an input for receiving a voltage change signal representing a selected load voltage to be applied to said lighting load, and said controller being connected to said tap switches for selectively closing one of said tap switches to produce said prescribed voltage value across said second winding of said main transformer whereby said selected load voltage is output across said first winding of said main transformer and applied to said lighting load without interruption of the lighting.

2. The system of claim 1 including a transient control circuit connected across an output of said tap switches for dissipating transient currents during changing of said tap switches.

3. The system of claim 2 wherein said transient control circuit comprises a solid-state switch and a resistor connected in series across said second winding of said main transformer, and a soft-start circuit for disconnecting the transformer from the main power during switching of said tap switches.

4. The system of claim 3 wherein said transient control circuit includes a second solid-state switch connected in series with said second winding of said main transformer and neutral; and said soft-start circuit including a synchronizing circuit for synchronizing the switching of said second control switch to disconnect said transformer with the changing of said tap switches..

5. The system of claim 4 wherein said programmed controller includes a program for sequencing the switching of said tap switches and controlling said transient control circuit to reduce transients during change of said tap switches in response to said controller receiving an input signal to change voltage to said lighting load.

6. The system of claim 5 wherein said controller program includes tap switch switching instructions for switching from a currently closed tap switch to a newly selected tap switch in response to said input signal comprising;

control switch instructions for closing said first control switch upon receipt of a switch change signal so that said resistor is placed across said second winding;

control switch instructions for opening said second control switch to disconnect said second coil of said main transformer from said power source;

tap switch instructions for opening the currently closed tap switch and closing said selected tap switch; and

control switch closing instructions closing said second control switch and opening instructions for opening said first control switch.

7. The system of claim 5 wherein said system includes a visual display , and said controller program includes a routine for displaying the status of said power control system on said visual display.

8. The system of claim 5 wherein said controller program includes instructions for alerting an external device if the power control system has been in a high voltage mode for a prescribed period of time.

9. The system of claim 8 wherein said computer program includes instructions for setting said power control system in the high voltage mode in the event load voltage drops below a prescribed low voltage for a prescribed period of time.

10. The system of claim 1 wherein said solid-state tap switches are connected in parallel with one another and in series with said transformer taps and said second coil of said main transformer.

11. The system of claim 10 wherein closing of said tap switches cause the voltage across said second winding of said main transformer to be progressively stepped up causing the voltage of said first winding to be stepped down correspondingly.

12. The system of claim 1 wherein said controller input includes a manual input for receiving a desired selected voltage whereupon said controller causes said tap switch to close.

13. The system of claim 1 wherein said controller input includes a digital input for connection to a remote device for inputting the desired voltage from a remote location.

14. The system of claim 13 wherein said controller includes a digital output for outputting the voltage setting of said controller to said remote device.

15. A power control system for controlling the power supplied to a lighting system and limiting power during time of peak demands and the like wherein the lighting system includes a power source and a lighting load connected to the power source, said control system comprising:

a main transformer having a first winding and a second winding, said first winding being connected between said power source and said lighting load;

an autotransformer connected to said power source having a plurality of electrical transformer taps having prescribed voltage values,

a plurality of solid-state tap switches connected to said transformer taps and to said second winding of said main transformer to apply said prescribed voltage values across said second winding; and

a system controller having an input for receiving a voltage change signal representing a selected load voltage to be applied to said lighting load;

said controller being connected to said tap switches for selectively closing one of said tap switches to produce said prescribed voltage value across said second winding of said main transformer whereby said selected load voltage is output across said first winding of said main transformer and applied to said lighting load without interruption of the lighting; and

a transient control circuit connected across an output of said tap switches for dissipating transient currents during switching said tap switches.

16. The system of claim 15 wherein said transient control circuit comprises a first solid-state switch and a resistor connected in series across said second winding of said main transformer; and a second solid-state switch connected in series with said second winding of said main transformer and neutral.

17. The system of claim 15 wherein said controller includes a computer program for sequencing the switching of said tap switches and controlling said transient control circuit to reduce transient voltages during change of said tap switches in response to said controller receiving an input signal to change power to said lighting load.

18. The system of claim 17 wherein said controller program includes tap switch switching instructions for switching from a currently closed tap switch to a newly selected tap switch in response to said input signal comprising;

control switch instructions for closing said first control switch upon receipt of a switch change signal so that said resistor is placed across said second winding;

control switch instructions for opening said second control switch to disconnect said second coil of said main transformer from said power source;

tap switch instructions for opening the currently closed tap switch and closing said selected tap switch; and

control switch closing instructions closing said second control switch and opening instructions for opening said first control switch.

19. The system of claim 15 wherein first and second windings of said main transformer are out of phase with each other.

20. The system of claim 19 wherein closing of said tap switches cause the voltage across said second winding of said main transformer to be progressively stepped up causing the voltage of said first winding to be stepped down correspondingly.

21. A power control system for controlling the power supplied to a lighting system and limiting power during time of peak demands and the like wherein the lighting system includes a power source and a lighting load connected to the power source, said control system comprising:

a main transformer having a first winding and a second winding, said first winding being connected between said power source and said lighting load;

a toroidal transformer connected to said power source having a plurality of electrical transformer taps with prescribed voltage values;

a plurality of solid-state tap switches connected to said transformer taps and to said second winding of said main transformer to apply one of said prescribed voltage values across said main transformer;

a programmed controller having an input for receiving a voltage change input signal representing a desired selected load voltage to be applied to said lighting load; and said controller being connected to said tap switches for selectively closing one of said tap switches to apply said prescribed voltage value across said second winding of said main transformer whereby said selected load voltage is output across said first winding of said main transformer and applied to said lighting load without interruption of the lighting; and

said controller sequencing the switching of said tap switches in response to a voltage change input signal to change the power applied to said lighting load; and a transient control circuit for synchronizing the disconnection of said main transformer from the main power during changing of said tap switches.

22. The system of claim 21 including a transient control circuit connected across an output of said tap switches for dissipating transient currents during changing of said tap switches.

23. The system of claim 22 wherein said transient control circuit comprises a first solid-state control switch and a resistor connected in series across said second winding of said main transformer, and a second solid-state control switch connected in series with said second winding of said main transformer and neutral.

24. The system of claim 23 including a soft-start circuit for switching said second control switch in accordance with an incoming voltage waveform to ensure that switching is done at a point on the waveform that minimizes transients.

25. The system of claim 23 wherein said controller program is programmed for switching from a currently closed tap switch to a newly selected tap switch in response to said input signal comprising; closing said first control switch upon receipt of a switch change signal so that said resistor is placed across said second winding; opening said second control switch to disconnect said second coil of said main transformer from said power source; opening the currently closed tap switch and closing said selected tap switch; closing said second control switch and opening instructions for opening said first control switch.

26. The system of claim 21 wherein said solid-state tap switches are connected in parallel with one another and in series with said transformer taps and said second coil of said main transformer.